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Claims

1. A multi-band monopole antenna, comprising:
5 an antenna substrate;
a first conductor for receiving networking signals in the frequency range of about 4.9 GHz to about 5.875 GHz, said first conductor having a polygonal shape with an aspect ratio of length to width of less than about 5 to about 1;
a second conductor for receiving networking signals in the frequency
10 range of about 2.4 GHz to about 2.5 GHz, said second conductor adopting a linear, space-filling, or grid dimension shape; and
a feeding point for connecting the first conductor and the second conductor.
- 15 2. The multi-band monopole antenna of claim 1, wherein the first conductor has one or more notches where material is removed from the polygonal shape for matching the impedance of the antenna.
3. The multi-band monopole antenna of claim 1, wherein the first conductor
20 has an aspect ratio of less than about 3 to about 1.
4. The multi-band monopole antenna of claim 1, wherein the first conductor has an aspect ratio of less than about 2 to about 1.
- 25 5. The multi-band monopole antenna of claim 1, wherein the first conductor has an aspect ratio of about 3 to about 2.
6. The multi-band monopole antenna of claim 1, wherein the first conductor receives network signals in the 802.11a band.

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7. The multi-band monopole antenna of claim 1, wherein the second conductor receives network signals in the 802.11bg band.
8. The multi-band monopole antenna of claim 1, wherein the substrate comprises a 10 mm × 10 mm × 0.8 mm circuit board with a copper base conductor.
9. A printed circuit board comprising one or more of the multi-band monopole antennas of claim 1.
10. The printed circuit board of claim 9, wherein two or more multi-band monopole antennas are used and conducting material of the printed circuit board located between the antenna attachment points is interrupted.
11. A symmetrical multi-band monopole antenna, comprising:
- an antenna substrate;
- first and second conductors for receiving networking signals in the frequency range of about 4.9 GHz to about 5.875 GHz, said first and second conductors having symmetrical polygonal shapes with an aspect ratio of length to width of less than about 5 to about 1;
- third and fourth conductors for receiving networking signals in the frequency range of about 2.4 GHz to about 2.5 GHz, said third and fourth conductors adopting symmetrical linear, space-filling, or grid dimension shapes; and
- a feeding point for connecting the first, second, third and fourth conductors,
- wherein the first and second conductors are symmetrically oriented with respect to each other about a central axis on the antenna substrate and the third and fourth conductors are symmetrically oriented with respect to each other about the central axis on the antenna substrate.

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12. The symmetrical multi-band monopole antenna of claim 11, wherein the first and second conductors have one or more notches where material is removed from the polygonal shape for matching the impedance of the antenna.
- 5 13. The symmetrical multi-band monopole antenna of claim 11, wherein the first and second conductors each have an aspect ratio of less than about 3 to about 1.
14. The symmetrical multi-band monopole antenna of claim 11, wherein the
10 first and second conductors each have an aspect ratio of less than about 2 to about 1.
15. The symmetrical multi-band monopole antenna of claim 11, wherein the first and second conductors each have an aspect ratio of about 3 to about 2.
- 15 16. The symmetrical multi-band monopole antenna of claim 11, wherein the first and second conductor receives network signals in the 802.11a band.
17. The symmetrical multi-band monopole antenna of claim 11, wherein the
20 second and third conductors receive network signals in the 802.11bg band.
18. The symmetrical multi-band monopole antenna of claim 11, wherein the substrate comprises a 10 mm × 10 mm × 0.8 mm circuit board with a copper base conductor.
- 25 19. A printed circuit board comprising one or more of the symmetrical multi-band monopole antennas of claim 11.
20. The printed circuit board of claim 9, wherein two or more symmetrical
30 multi-band monopole antennas are used and conducting material of the printed circuit board located between the antenna attachment points is interrupted.